

# Southeast Menhaden Fisheries

## INTRODUCTION

**M**enhaden are a herring-like species found in coastal and estuarine waters of the U.S. Atlantic and Gulf of Mexico. They form large schools at the surface which can be located by aircraft and harvested to produce fish meal, oil, and soluble proteins. An active baitfish fishery along the Atlantic and Gulf coasts harvests about 5% of the amount landed by the industrial fishery. These fisheries are managed by individual states, with intrastate coordination handled through the Atlantic States Marine Fisheries Commission and the Gulf States Marine Fisheries Commission (GSMFC). Menhaden are prey for many fishes and sea birds.

In the Atlantic area, the resource is fully utilized with a long-term potential yield of 480,000 t per year and a recent average yield of 330,000 t per year (Table 10-1). In the Gulf of Mexico, the menhaden resource is fully utilized with LTPY of 660,000 t and a RAY of 560,000 t.

### Atlantic Menhaden

Atlantic menhaden are found from Nova Scotia (Canada) to West Palm Beach (Florida). As coastal waters warm in April and May, large surface schools form along the coasts of Florida, Georgia, and the Carolinas. The schools move slowly northward, stratifying by age and size during the summer, with the older and larger fish generally moving farther north. The southward migration begins in early fall with surface schools disappearing in late December or early January off the Carolinas. Atlantic

menhaden may live 10 years, but most fish caught are 3 years of age or younger.

Menhaden landings rose during the 1940s and early-1950s, peaking at 712,100 t in 1956 (Fig. 10-1). Landings remained high during the late 1950s and early-1960s, dropped precipitously during the middle-1960s, and remained low, bottoming out at 161,600 t in 1969. Since 1970, landings have improved but not to the levels of the late-1950s. A recent peak of 418,600 t occurred in 1983, even though recruitment to age 1 is comparable with the 1950s. The commercial ex-vessel revenue of Atlantic menhaden for 1989-93 averaged \$37.1 million per year. In 1994, three menhaden reduction or processing plants were in operation, two in Reedville, Virginia, and one in Beaufort, North Carolina.

The stock collapse in the 1960s drove fishing effort southward to North Carolina and Virginia where menhaden are generally younger and smaller than those in the north. Overutilization owing to "growth overfishing" (catching too many fish before they grow to full size) has been a prime management concern for this stock. While maximum spawning potential estimates have been low (10%), estimates of spawning stock biomass have rebounded from the very low levels of 1965-75, although not to the very high level of the late-1950s. A new management plan was adopted by the ASMFC in September 1992 which provided for an annual review of six "trigger" variables (landings in weight, percentage of age 0 and adults in numbers in the landings, recruits to age 1, spawning stock biomass, and maximum spawning potential). Exceeding pre-specified levels of trigger variables in conjunction with ancillary information will determine the need for specific management actions.

### Gulf of Mexico Menhaden

Gulf menhaden are found from Mexico's Yucatan Peninsula to Tampa Bay, Fla. They form large surface schools that appear in the nearshore Gulf waters from April to November. Although no extensive coastwide migrations are known, some evidence suggests that older fish move

**Table 10-1.**

**Southeast Menhaden**

*Productivity in metric tons and status of fisheries resources*

Species / Area	Recent Average Yield (RAY)	Current Potential Yield (CPY)	Long-Term Potential Yield (LTPY)	Fishery Utilization Level	Stock Level Relative to LTPY
Menhaden					
Gulf of Mexico	560,000	560,000	660,000	Full	Near
Atlantic	330,000	330,000	480,000	Full	Near
Total	890,000	890,000	1,140,000		

toward the Mississippi River Delta. Gulf menhaden may live to age 5, but most of those landed are ages 1 and 2. In 1994, active Gulf menhaden reduction plants were located in Moss Point, Miss., and in Empire, Dulac, Morgan City, Intracoastal City, and Cameron, La.

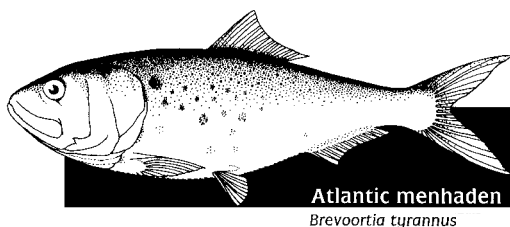
Historically, landings rose from after World War II to a peak of 982,800 t in 1984 (Fig. 10-1). Landings were generally high during the mid-1980s (greater than 800,000 t for 1982-87), but they declined steeply from 894,200 t to 421,400 t between 1987 and 1992. During this period (1987-92), the number of processing plants declined from eight to six, and vessels from 75 to 51. Although catch per unit of effort (expressed as t per vessel-ton-weeks) showed a similar decline (1.48 t/vtw in 1987 to 1.03 t/vtw in 1992, CPUE is not useful as an index of population abundance for menhaden. The commercial ex-vessel revenue of Gulf menhaden for 1989-93 averaged \$51.3 million per year. Despite depressed landings during 1989-1993 that averaged 520,000 t, landings of Gulf menhaden rebounded in 1994 to 761,600 t.

Because Gulf menhaden has a short live cycle and a high natural mortality, "growth overfishing" has not been a major management concern. Management coordinated through the GSMFC consists of a 6-month fishing season (mid-April through mid-October) and closure of inside waters across the northern Gulf of Mexico. A revision to the FMP was initiated in 1993 (last revised in 1988). In fall 1992, the GSMFC recommended changing the Gulf season ending date to 1 November. Coastal states are in the process of acting on that recommendation within their regulatory framework.

## ISSUES

### Management Concerns

Atlantic menhaden continue to be growth overfished, which reduces the opportunity for greater weight production. Additionally, social concerns have resulted in numerous area closures along the Atlantic coast. Gulf menhaden landings have declined greatly since 1988; however, estimates of maximum spawning potential remain high (about 40%).

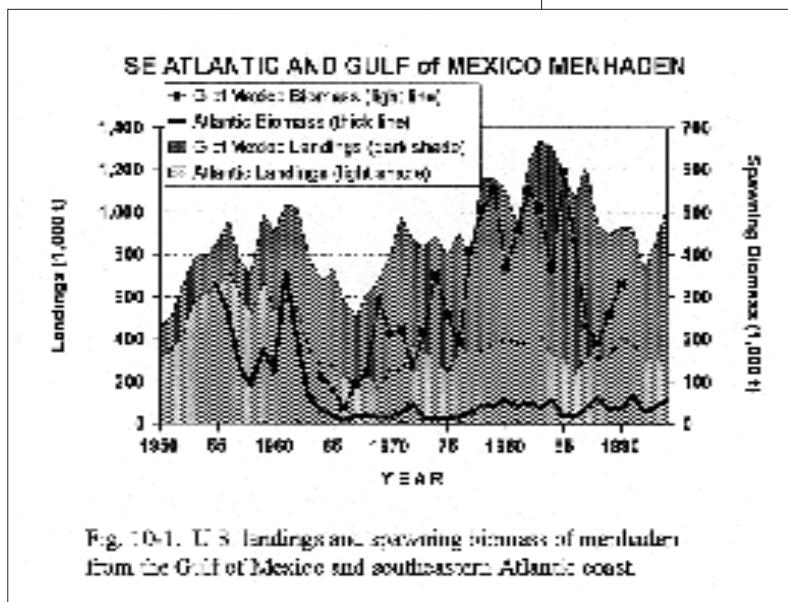


## Transboundary Stocks and Jurisdictions

Because this resource migrates long distances along the coast, interstate coordination of menhaden management is required for Atlantic menhaden along the U.S. Atlantic coast and for Gulf menhaden along the northern Gulf of Mexico through

### SE Atlantic Menhaden Landings (t)

1993	320,600
1994	260,000



the marine fisheries commissions. Fish landed at processing plants in New Brunswick and Nova Scotia, Canada, were caught off Maine by U.S. vessels and transported to Canada for processing.

## Bycatch and Multispecies Interactions

Two Saltonstall-Kennedy studies funded in 1992 that investigated bycatch in the Atlantic and Gulf menhaden purse-seine fisheries show very low bycatch incidence (<0.1% of other species). The importance of menhaden as prey for other species should be considered with respect to multispecies resource management. □

### Gulf of Mexico Menhaden Landings (t)

1993	539,200
1994	761,600